

WHAT IS CLAIMED IS:

1. A power transmission system which has a power synthesizing mechanism connected in a power transmitting manner to an electric motor and a power generator, and a speed change mechanism for changing the rotating speed of said electric motor to transmit a torque of the electric motor to said power synthesizing mechanism, comprising:

an arranging region for said electric motor and an arranging region for said power generator in the axial directions of the output shaft of said electric motor and the rotary shaft of said power generator,

wherein said arranging regions do not overlap on each other.

2. A power transmission system according to Claim 1,

wherein the output shaft of said electric motor is arranged in the transverse direction of a vehicle.

3. A power transmission system according to Claim 1,

wherein said power synthesizing mechanism includes a planetary gear mechanism having: a sun gear; a ring gear arranged on the outer side of said sun gear; and a carrier for holding a pinion gear meshing with said sun gear and said ring gear.

4. A power transmission system according to Claim 1,

wherein said speed change mechanism includes a planetary gear mechanism having: a sun gear; a ring gear arranged on the outer side of said sun gear; and a carrier for holding a pinion gear meshing with said sun

gear and said ring gear.

5. A power transmission system according to Claim 4,
wherein said speed change mechanism has any of said sun gear, said ring gear and said carrier fixed so that the torque of said electric motor is increased by said speed change mechanism and transmitted to said power synthesizing mechanism.

6. A power transmission system according to Claim 1,
wherein said power synthesizing mechanism includes a first planetary gear mechanism having: a first sun gear; a first ring gear arranged on the outer side of said first sun gear; and a first carrier for holding a first pinion gear meshing with said first sun gear and said first ring gear, and

wherein said speed change mechanism includes: a second planetary gear mechanism having: a second sun gear; a second ring gear arranged on the outer side of said second sun gear; and a second carrier for holding a second pinion gear meshing with said second sun gear and said second ring gear; and

a fixing mechanism for increasing the torque of said electric motor by fixing any of said second sun gear, said second ring gear and said second carrier, to transmit the increased torque to said power synthesizing mechanism.

7. A power transmission system according to Claim 6,
wherein the first carrier of said first planetary gear mechanism and

an engine are connected to each other, wherein said electric motor and the second sun gear of the second planetary gear mechanism are connected to each other, wherein the second carrier of said second planetary gear mechanism is fixed, and wherein the first ring gear of said first planetary gear mechanism and the second ring gear of said second planetary gear mechanism are connected to each other.

8. A power transmission system according to Claim 6, further comprising:

a first holding member for holding the first ring gear of said first planetary gear mechanism and the second ring gear of said second planetary gear mechanism rotatably, and arranged on the outer side of said first ring gear and said second ring gear.

9. A power transmission system according to Claim 8, further comprising:

an arranging region for said first holding member and an arranging region for said electric motor,

wherein at least a portion of the arranging region for said first holding member and at least a portion of the arranging region for said electric motor overlap on each other in the axial direction of the output shaft of said electric motor.

10. A power transmission system according to Claim 7, further comprising:

a rotary member for connecting said engine and said first carrier

and is arranged on the same axis as the output shaft of said electric motor.

11. A power transmission system according to Claim 1, further comprising:

a rotary member offset in the radial direction with respect to the output shaft of said electric motor and connected to said engine.

12. A power transmission system according to Claim 11, further comprising,

a first gear connected to the output shaft of said electric motor, and wherein said speed change mechanism includes an internal gear,

and

wherein said first gear is arranged in the inside space of said internal gear and meshes with said internal gear.

13. A power transmission system according to Claim 12, further comprising:

a second holding member for holding said internal gear rotatably and is arranged on the outer side of said internal gear.

14. A power transmission system according to Claim 13, further comprising:

an arranging region for said second holding member,

wherein at least a portion of the arranging region for said second holding member and at least a portion of the arranging region for said electric motor overlap on each other in the axial direction of the output shaft

of said electric motor.

15. A power transmission system according to Claim 11, further comprising:

a second gear made rotatable together with said first ring gear, wherein the output shaft of said engine is connected to said first sun gear, and

wherein said speed change mechanism includes said second gear, and a third gear for transmitting the power of said electric motor to said second gear.

16. A power transmission system according to Claim 11, further comprising:

a fourth gear made rotatable together with said first ring gear; and a fifth gear made rotatable together with said fourth gear, wherein the output shaft of said engine is connected to said first sun gear,

wherein said speed change mechanism includes said fourth gear, and a sixth gear for transmitting the power of said electric motor to said fourth gear, and

wherein the power of said first ring gear and the power of said fourth gear are synthesized so that the synthesized power is transmitted through said fifth gear to wheels.

17. A power transmission system according to Claim 11, further comprising:

a seventh gear made rotatable together with said first ring gear; and
an eighth gear mesh with said seventh gear,

wherein said speed change mechanism includes said eighth gear,
and a ninth gear for transmitting the power of said electric motor to said
eighth gear, and

wherein the power of said seventh gear and the power of said ninth
gear are synthesized so that the synthesized power is transmitted through
said eighth gear to wheels.

18. A power transmission system according to Claim 1,

wherein a space for separating the arranging region for said electric
motor and the arranging region for said power generator is formed between
said electric motor and said power generator in the axial direction, and
arranges said power synthesizing mechanism and said speed change
mechanism therein.

19. A power transmission system according to Claim 1, further
comprising:

a wound transmission member made to run on the output member
of said power synthesizing mechanism and an intermediate rotary member;

a differential arranged concentrically with said intermediate rotary
member; and

a decelerating planetary gear mechanism arranged concentrically
with said intermediate rotary member and said differential and, when
transmitting the power of the intermediate rotary member to the
differential, transmitting the power by decelerating the rotating speed of

the power.

20. A power transmission system according to Claim 18, further comprising:

a wound transmission member made to run on the output member of said power synthesizing mechanism and an intermediate rotary member;

a differential arranged concentrically with said intermediate rotary member; and

a decelerating planetary gear mechanism arranged concentrically with said intermediate rotary member and said differential and, when transmitting the power of the intermediate rotary member to the differential, transmitting the power by decelerating the rotating speed of the power.